

Diagnosis of painted wood ceiling planks from an eighteen century building

Teresa Sande Lemos¹, Mafalda Sobral¹ and Lina Nunes^{1,2}

¹ Fundação Ricardo do Espírito Santo Silva (FRESS), Escola Superior de Artes Decorativas, Portugal

² Laboratório Nacional de Engenharia Civil (LNEC), Núcleo de Estruturas de Madeira, Portugal

Abstract

Our studies were conducted on three panels of decorative cover ceiling planks in chestnut wood with paintings from the eighteen century. This work has been developed within the scope of the final project of the Specialized Technical Courses in “Conservation and Restoration of Wood and Wood Furniture” and “Conservation and Restoration of Wood Paintings” carried out by FRESS in Lisbon, Portugal. The three panels are formed by separated planks in a reasonable conservation state though with signs of degradation by wood-boring beetles whenever sapwood was present, staining, warp and metal corrosion due to the fasteners. The combined action of the wood-boring beetles and the presence of moisture at some point in the life history of the panels destroyed parts of the paintings support. The diagnostic of the state of the wood is presented in this paper, as well as the possible lines of intervention to restore the supports.

1. INTRODUCTION

Within the scope of the final project of the Specialized Technical Courses in “Conservation and Restoration of Wood and Wood Furniture” and “Conservation and Restoration of Wood Paintings” carried out by FRESS in Lisbon, Portugal, three panels of decorative cover ceilings planks in chestnut wood (*Castanea sativa* Miller) with paintings from the eighteen century have been studied. The project includes the diagnosis of the structure with description of the anomalies present and the preliminary definition of an intervention proposal to improve the conservation state of the wood. Details of the conservation of the painting will not be discussed in the present paper.

These panels have been out of use for sometime and belong to the collection of the Museum of *Fundação Ricardo Espírito Santo Silva*. Due to lack of available exhibition space, the panels were on storage for more than ten years not always under the best conservation conditions which might have led to the aggravation of some pre-existent problems, namely warp and insect infestation.

The ceiling panels can be assigned, taking into account the drawings and the colours present, to the Portuguese early baroque style. This style is called *brutesco*, and is characterized by massive ornamentation, with general vegetal motifs, like flowers and large leaves, and *ferroneries* [1]. The dominant colours of the paintings from this period also found in the studied panels were red, blue, yellow, green and black.

The three panels under study are formed by separated boards, two of them have overlapping joints (*saia-camisa*) and the other one has a single joint structure (*junta seca*). All of them are in a reasonable conservation state, however with signs of degradation by wood-boring beetles whenever sapwood was present, staining, warp and metal corrosion near the fasteners.

The combined action of the wood-boring beetles and the presence of moisture at some point in the life history of the panels destroyed parts of the paintings support. The diagnostic of their state of conservation is presented as well as some ideas about the way forward in the conservation of these interesting objects.

2. DIAGNOSIS

The initial step of the diagnosis was the identification of the wood used and a preliminary evaluation revealed that all ceiling panels were made of chestnut (*C. sativa*). They show signs of degradation not only from the time they were in use but also linked to the far from ideal conditions of storage of the last few years.

The chestnut wood planks show a significant number of cracks and fractures both caused by the action of xylophage insects with consequent lost of ligneous material and the intermittent exposure to moisture. In association with variations of moisture levels of the wood, bow, severe warp and cracks developed in some of the planks. These are in clear risk of collapsing thus putting in serious risk the interesting characteristics of the paintings. Staining due to moisture or corrosion by metal is also present in all panels. Large deposits of dirt sediments are also present in all panels.

Prior to the intervention all planks were treated by fumigation to stop all possible insect activity.

2.1. Ceiling panel n°1

This structure, of approximately 2.16 x 1.65 m, is formed by nine planks with polychromes and the usual decoration motifs of the “*brutesco*” (Figure 1).

The planks, in Portuguese chestnut wood, are made mostly of heartwood in reasonable state of conservation though with the already referred problems of bow, warp, cracks and loss of material due to insect activity (Figure 2).

The planned intervention in this panel, in what respects the conservation of the wooden substrate, will involve the careful cleaning of the surfaces and the posterior use of two complementary techniques: application of small grafts of wood from the same species to restore the volumetric dimensions of the initial panel and consolidation of the unpainted surface with an acrylic polymer in organic solvent. Paraloid B72 is one of the materials most used for consolidation of wood objects [2] and it will be the most probable choice for this work.



Figure 1 – Front view of ceiling panel n° 1



a)



b)



c)



d)

Figure 2 – Ceiling panel nº 1. Details a) zone with detachment of the painting; b) severe cracking; c) moisture stain better seen in the back view and d) insect damage and consequent loss of material

2.2. Ceiling panel nº2

This structure, of approximately 2.03 x 1.70 m, is formed by eight planks with polychromes with the same usual motifs of the “*brutesco*” framed by a gold and yellow painted border (Figure 3).

The planks, in Portuguese chestnut wood, are made again mostly of heartwood in reasonable state of conservation. Figure 4 shows some details of the rear view of the ceiling plank underlying the most important problems found in panel nº2. In this case, and due to the very small amounts of sapwood used, there were very few signs of insect degradation and considerably less loss of material.

The planned intervention in this panel, in what respects the conservation of the wooden substrate, will again involve the careful cleaning of the surfaces followed by spot impregnation, namely of the holes caused by metal elements, with an acrylic resin in organic solvent.



Figure 3 – Front view of ceiling panel n° 2



a)



b)



c)

Figure 4 – Ceiling panel n° 2. Details of rear face a) dust deposits and moisture stains; b) dust deposits and corrosion stains; c) bow, severe cracks and moisture stains

2.3. Ceiling panel nº3

This structure, of approximately 2.05 x 1.673 m, is formed by nine planks with polychromes and the usual decoration motifs of the “*brutesco*” in this case very similar to the ones applied in ceiling panel nº 1 (Figure 5) .

The planks, of Portuguese chestnut wood, are made mostly of heartwood in reasonable state of conservation though with problems similar to those described for ceiling panel nº 1. The loss of material was, in the case of this panel, more evident and had a stronger impact in the painted surface (Figure 6).

The planned intervention in this panel, in what respects the conservation of the wooden substrate, will involve again the careful cleaning of the surfaces and the subsequent use of the two complementary techniques described: application of small grafts of wood and consolidation of the unpainted surface with an acrylic polymer in organic solvent.



Figure 5 – Front view of ceiling panel nº 3



a)



b)

Figure 6 – Ceiling panel nº 3. Details a) front view with loss of material due to insect attack b) back view of the same zone

3. FUTURE WORK

The intervention described, done within the final year project of the Specialized Technical Courses carried out by FRESS, was considered important not only to preserve the interesting features of the panels but also to allow their display in future exhibitions planned for the Museum of *Fundação Ricardo Espírito Santo Silva*.

The present paper dealt with the initial steps of the restoration of the wooden supports of three painted ceilings from the eighteenth century. In parallel, measures were also taken to clean and restore the paintings. As conclusion of this work it will be necessary to build a new wood structure to support each panel. These new structures will be made in a softer wood to sustain the panel's movements and to avoid further cracking and will allow their planned display.

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References

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